AP47 Autopilot

OPERATION

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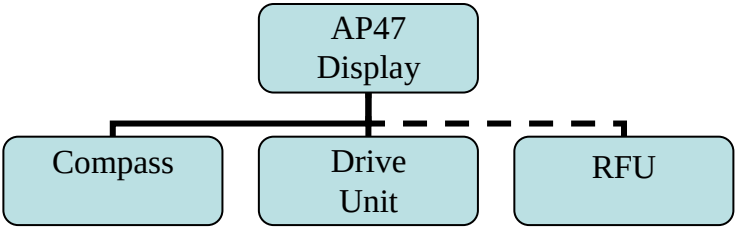
Warning!

WHEN USING THE AUTOPILOT AN ADEQUATE WATCH SHOULD BE MAINTAINED AT ALL TIMES.

THE AUTOPILOT MUST BE PLACED IN MANUAL MODE WHEN EVER THE VESSEL IS STATIONARY

THE AUTOPILOT SHOULD NOT BE USED WHILE NAVIGATING IN RESTRICTED WATERS

AP47 System Block Diagram



*Dashed line only applicable for AP47R when rudder feedback unit (RFU) is required.

Refer to Installation & Service Manual for information on installation of autopilot system and interconnection diagrams.

Basic Operation – Non Rudder Feedback Version

Switch on power to autopilot. Display shows boat heading - example H123. MANUAL light (LED) will be on. Steer vessel to course.

To engage autopilot for automatic steering:
Press AUTO. Display will show heading for autopilot to steer - example A123. AUTO light (LED) will be on.
Press ◄ to adjust course to port. Press ► to adjust course to starboard

To disengage autopilot for manual steering:
Press AUTO. Display will show boat heading. MANUAL light on

To set rudder response (rudder angle ratio)
Press MODE. Display will show a number - example r 05.
Press ► to increase rudder setting. Press ◄ to decrease setting.
3 seconds after adjustment pilot will return display to normal.

To switch LCD back light on or off.
Press MODE MODE
Press ◄ or ► to turn light on. Press ◄ or ► again to turn light off.
To return pilot to normal continue pressing MODE.

Waypoint Steering

> ***Note:*** *Before engaging waypoint steering mode, a route or destination must be programmed and selected in the GPS plotter for the autopilot to follow*

To engage waypoint steering:
Press both AUTO and MODE buttons together. GPS light will be on.
The autopilot will lock on to "course to steer" as requested by the GPS plotter.
Displays shows bearing to waypoint (BTW).

If no GPS data is received by the AP47, "NO GPS DATA" alarm will function. Both GPS and ALARM lights will flash on and off.

To disengage GPS mode:
Press AUTO button. Pilot will return to MANUAL operation.

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Basic Operation – Rudder Feedback Version

Switch on power to autopilot. Display shows boat heading - example H123. MANUAL light (LED) will be on. Steer vessel to course.

To engage autopilot for automatic steering:
Press AUTO. Display will show heading for autopilot to steer - example A123. AUTO light (LED) will be on.
Press ◄ to adjust course to port. Press ► to adjust course to starboard

To disengage autopilot for manual steering:
Press AUTO. Display will show boat heading. MANUAL light on

To set sensitivity (course deadband):
Press MODE. Display will show a number - example: S 04
Press ◄ to decrease sensitivity. Press ► to increase. Low number = narrow deadband. High number = wide deadband
3 seconds after adjustment pilot display reverts to normal.

To set rudder response (rudder angle ratio):
Press MODE - MODE. Display will show a number - example r 05
Press ► to increase rudder setting. Press ◄ to decrease setting.
Low number = small rudder angle. High number = large rudder angle.
3 seconds after adjustment pilot display reverts to normal.

To view rudder angle:
Press MODE - MODE – MODE:
Display shows rudder angle position – example Pt 02 (2^{o} port rudder)
Display will change with rudder movement.
To return pilot to normal continue pressing MODE

To switch LCD back light on or off:
Press MODE - MODE – MODE – MODE:
Press ◄ or ► to turn light on. Press ◄ or ► again to turn light off.
To return pilot to normal continue pressing MODE.

For waypoint steering refer page 3.

Jog Steering

Switch on power to autopilot. Display shows boat heading - example H123. MANUAL light (LED) will be on.

To operate steering:
Press ◄ to turn rudder to port. Press ► to turn rudder to starboard.

> **NOTE.** ***Do not press either ◄ or ► for more than 4 seconds as the rudder may drive hard over into the stops. Driving the steering into the physical stops will damage your autopilot***

Wind Operation

ATTENTION! *Wind operation is available only if wind data is supplied from a wind system which provides NMEA output - $**MWV. If the wind data is interrupted for more than 10 seconds, the pilot returns to basic operation mode (MANUAL).*

Switch on power to autopilot. Display shows boat heading - example H123. MANUAL light (LED) will be on. Steer vessel to course.

To engage Wind mode:
Press ◄ and ► buttons together. Display shows relative* wind direction – example P030 - this indicates wind direction at 030º on the port bow. – example S030 - this indicates wind direction at 030º on starboard bow.

* *Depending on boat speed. If boat has speed forward then wind is apparent*

Steer boat to initial tack course.

Press AUTO to engage autopilot.
Example 1. Wind direction is 045º on port side display shows P045. Press ◄ for 3 seconds. Boat will alter course (tack) until wind direction is at 045º starboard and display will show S045. Total tack angle is 90º.

Example 2. Wind direction is 035º on starboard side display shows S035.
Press ► for 3 seconds. Boat will alter course (tack) until wind direction is at 035º on port side and display will show P035. Tack angle is 70º.

Tack angle can be adjusted in small amounts by pressing ◄ or ► momentarily. Each press alters angle by 1º in relevant direction. Maximum tack angle recommended is for wind direction of 045º port to 045º starboard.

GPS as a Heading Source (no Compass)

A compass is not used with this system.

Display will show COG heading from GPS – example C123. If a compass is reconnected the display will change to compass heading – example H123.

Refer to Basic Operation pages 3 or 4 to use the pilot.

Basic Trouble Shooting

Display does not indicate

- Check supply voltage is 12 volts DC (Red and Black)
- Check in-line fuse

Display shows heading but rudder does not move when AUTO is selected

- Check MANUAL light is on.
- Press AUTO. Check AUTO light is on
- Check voltage at the motor connections (yellow & yellow/black wires) when ◄ or ► is pressed several times.
- Check motor or pump set wiring
- Check motor brushes
- Check the hydraulic system:
    1. Ensure there is sufficient hydraulic fluid.
    2. Purge the system of possible air locks / contamination.
    3. Ensure that any flow restricting valves are not completely closed.
    4. Check all pipe connections for leaks.

Autopilot cannot be used in Wind Steering Mode

- Check Wind Speed & Direction system is switched on
- Check wire connections from wind system to autopilot

If any fault cannot be found, consult your dealer.

Declaration of Conformity

(MANUFACTURERS DECLARATION)

MANUFACTURER:- TMQ ELECTRONICS
PO BOX 3348
TINGALPA DC 4172
AUSTRALIA
TEL: +61 7 3890 7788
FAX: +61 7 3890 7799

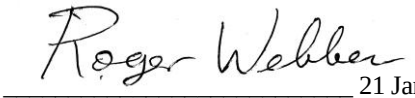
Declares under our sole responsibility that the products:

AP47 Display, Rudder Feedback Unit, Compass, all units interconnected with necessary cables and external connections as a system

to which this declaration relates, is in conformity with Standard(s):

EN60945/1997
CEI IEC945/1996

For TMQ International Pty. Ltd.
Murarrie Queensland Australia.



21 January 2010

Roger Webber, Manager

Warranty

TMQ Electronics products are thoroughly inspected and tested before shipment from the factory and are warranted to be free of defects in workmanship and materials for a period of one year from the date of shipment from the factory. By returning the enclosed questionnaire and registering the product. The warranty will be extended to a total of 3 years from the date of leaving the factory.

This warranty is extended to and is solely for the benefit of the original consumer purchaser.

All units in need of repair will be repaired without charge to the purchaser during the above mentioned period in accordance with the following terms and conditions:

1. The defective unit is returned "freight prepaid" to TMQ Electronics 1/18 Alexandra Place, Murarrie, QLD. 4172.

2. Proof of purchase is supplied and original Serial Numbers on equipment have not been changed.

3. Information is provided regarding the nature of the failure or problem occurring.

4. A return address is supplied to enable the equipment to be returned by road freight. Any other means of transport will be charged to the customers account and must be paid in advance.

This warranty does not cover defects or damages caused by unauthorised service or damage through accident, misuse or abuse. The owner is also responsible for providing reasonable maintenance and weather protection of the equipment.

TMQ Electronics shall not be liable for damage or loss incurred resulting from the use and operation of this product. TMQ Electronics reserves the right to make changes or improvements to later models without incurring the obligation to install similar changes to equipment already supplied. Some states do not allow the exclusion or limitation of incidental or consequential damages; therefore the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.